Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A flowbore fluid temperature control system comprising:

a control system body comprising a flowbore extending through the length of the control system body and comprising an inlet and an outlet such that all flowbore fluid entering the control system body inlet exits the control system outlet;

a valve mechanism within the control system body that controls the flow of flowbore fluid through the flowbore while maintaining the flowbore fluid in the control system body flowbore, the valve mechanism comprising:

a valve sleeve within the flowbore forming an annulus between the outside of the valve sleeve and the inside of the control system body;

the valve sleeve comprising flow ports allowing fluid flow through the valve sleeve and into the annulus;

the inside of the valve sleeve further comprising a circumferential groove that reciprocates between multiple first and second positions;

a piston slidingly engaging the inside of the valve sleeve, the position of the piston within the valve sleeve controlling the fluid flow through the flow ports;

the piston further comprising a ratchet lug extending from the piston that travels within the groove such that:

the piston moves axially under a first load until the ratchet lug moves to one of the second positions, the ratchet lug rotating the piston as the ratchet lug travels to one of the second positions;

the piston moves axially under a second load until the ratchet lug moves to one of the first positions, the ratchet lug rotating the piston as the ratchet lug travels to one of the first positions; and

the piston selectively moves between the first and second positions as the piston rotates within the valve sleeve; and

the position of the piston in the first and second positions allows varying flow rates through the valve sleeve;

an actuator that adjusts the valve mechanism;

an operating system that operates the actuator and controls the flowbore fluid pressure; and

the temperature of the flowbore fluid being controlled by controlling the pressure drop of the flowbore fluid across the valve mechanism.

2. - 3. (canceled)

4. (currently amended) The flowbore fluid temperature control system of claim ~~3~~ 1 further comprising a seal preventing fluid flow across the seal between the outside of the piston and the inside of the valve sleeve.

5. (currently amended) The flowbore fluid temperature control system of claim ~~3~~ 1 where the valve sleeve further comprises an outer threaded portion that threadingly engages an inner threaded portion of the flowbore.

6. (currently amended) The flowbore fluid temperature control system of claim ~~3~~ 1 where the actuator further comprises a spring within the valve sleeve that interacts with the piston.

7. (currently amended) The flowbore fluid temperature control system of claim ~~3~~ 1 where the piston moves in a first direction with an increase in flowbore fluid pressure such that the force of the flowbore fluid pressure causes the piston to compress a spring.

8. (canceled)

9. (currently amended) The flowbore fluid temperature control system of claim ~~8~~ 1 where flowbore fluid pressure provides the first load.

10. (currently amended) The flowbore fluid temperature control system of claim ~~8~~ 1 where a spring that is compressed as the piston moves to the second positions provides the second load.

11. (currently amended) The flowbore fluid temperature control system of claim ~~8~~ 1 where, once the piston is in one of the second positions, the valve mechanism maintains a selected fluid flow rate with an increase in the flowbore fluid pressure.

12. (currently amended) The flowbore fluid temperature control system of claim ~~8~~ 1 where a lock ring locks the piston in a selected second position.

13. (original) The flowbore fluid temperature control system of claim 1 where the operating system further comprises a fluid pump that controls the fluid pressure within the flowbore.

14. (original) The flowbore fluid temperature control system of claim 1 where the operating system operates the actuator mechanism to position the valve mechanism and selectively control the amount of fluid flow through the valve mechanism.

15. - 17. (canceled)

18. (original) The flowbore fluid temperature control system of claim 1 where the actuator is selected from the group consisting of a mechanical actuator, an electrical actuator, and a hydraulic actuator.

19. (original) The flowbore fluid temperature control system of claim 1 were the operating system is selected from the group consisting of a mechanical system, a hydraulic system, an electrical system, and an acoustic system.

20. - 40. (canceled)

41. (currently amended) A method of controlling the temperature of a flowbore fluid comprising:

flowing flowbore fluid through a control system body having a flowbore therethrough comprising an inlet and an outlet such that all flowbore fluid entering the control system body inlet exits the control system outlet;

flowing the flowbore fluid through a valve mechanism in the flowbore;

selectively adjusting ~~a~~ the valve mechanism ~~in the flowbore~~ with an actuator, the valve mechanism comprising:

a valve sleeve within the flowbore forming an annulus between the outside of the valve sleeve and the inside of the control system body;

the valve sleeve comprising flow ports allowing fluid flow through the valve sleeve and into the annulus;

the inside of the valve sleeve further comprising a circumferential groove that reciprocates between multiple first and second positions;

a piston slidingly engaging the inside of the valve sleeve, the position of the piston within the valve sleeve controlling the fluid flow through the flow ports; and

the piston further comprising a ratchet lug extending from the piston that travels within the groove;

wherein selectively adjusting the valve mechanism comprises:

moving the piston axially under a first load until the ratchet lug moves to one of the second positions, the ratchet lug rotating the piston as the ratchet lug travels to one of the second positions;

moving the piston axially under a second load until the ratchet lug moves to one of the first positions, the ratchet lug rotating the piston as the ratchet lug travels to one of the first positions; and

allowing varying flow rates through the valve sleeve in the first and second positions;

maintaining the flowbore fluid in the control system body flowbore as the fluid flows through the valve mechanism;

operating the actuator with an operating system; and

controlling the temperature of the flowbore fluid by controlling the pressure drop across the valve mechanism.

42. (original) The method of claim 41 where operating the actuator further comprises selectively adjusting the fluid pressure in the flowbore.

43. - 44. (canceled)

45. (currently amended) The method of claim ~~44~~ 41 further comprising interacting the piston with a spring.

46. (currently amended) The method of claim ~~44~~ 41 further comprising:

increasing the fluid flow through the valve sleeve by selectively increasing the flowbore fluid pressure to move the piston in a first direction in the valve sleeve, the piston opening flow ports in the valve sleeve and compressing a spring as the piston moves in the first direction; and

decreasing the fluid flow through the valve sleeve by selectively decreasing the flowbore fluid pressure to allow the spring to move the piston in a second direction in the valve sleeve, the piston closing flow ports in the valve sleeve as the piston moves in the second direction.

47.- 48. (canceled)

48. (canceled)

49. (currently amended) The method of claim ~~48~~ 41 comprising maintaining a selected flow rate through the valve sleeve and increasing the temperature of the flowbore fluid by increasing the fluid pressure of the flowbore fluid entering the valve sleeve.

50. (currently amended) The method of claim ~~47~~ 46 where the axial forces are caused by the fluid pressure in the flowbore in a first direction and the spring in a second direction.

51. - 59. (canceled)